

CLAIMS

1. A method for assembling a component in an assembly, the method including the steps of:
  - 5       positioning the component in the assembly in accordance with a proposed position in the assembly;
  - sensing that the component is in its correct spatial position in the assembly by use of sensing means capable of sensing spatial relationship and/or connection of the component in relation to the assembly; and
  - 10       communicating information regarding the sensed spatial relationship and/or connection to information processing means.
2. A method for disassembling a component from an assembly, the method including the steps of:
  - removing the component from its position in the assembly;
  - 15       sensing that the component has been removed from its position in the assembly using sensing means capable of sensing spatial relationship and/or connection of the component in relation to the assembly; and
  - communicating information regarding the sensed spatial relationship and/or connection to information processing means.
- 20 3. A method for assembling a component in an assembly in a chosen sequence, the method including the steps of:
  - selecting or identifying the component;
  - comparing the selected or identified component with information which correlates that component with sequence of assembly;
  - 25       positioning the component in the assembly in accordance with the sequence of assembly;
  - sensing that the component is in its correct spatial position in the assembly by use of sensing means capable of sensing spatial relationship and/or connection of the component in relation to the assembly; and

- communicating information regarding the sensed spatial relationship and/or connection to information processing means.
4. A method for disassembling a component from an assembly in a chosen sequence, the method including the steps of:
- 5        selecting or identifying the component;
- comparing the selected or identified component with information which correlates that component with sequence of disassembly;
- removing the component from the assembly in accordance with the sequence of disassembly;
- 10       sensing that the component has been removed from the assembly using sensing means capable of sensing spatial relationship and/or connection of the component in relation to the assembly; and
- communicating information regarding the sensed spatial relationship and/or connection to information processing means.
- 15    5. The method of claim 3, which includes the further step of halting the sequence of assembly unless the information communicated to the information processing means verifies that the component is in its correct spatial position.
6. The method of claim 4, which includes the further step of halting the sequence of disassembly unless the information communicated to the information processing
- 20       means verifies that the component has been removed from the assembly.
7. The method of any one of claims 1 to 6 which includes the further step of displaying information communicated to the information processing means on information display means.
8. The method of any one of claims 1 to 7 wherein the information processing means
- 25       is a computer.
9. A component for an assembly, the component being associated with:
- a sensing means capable of sensing spatial relationship and/or connection of the component in relation to the assembly; and
- means for communicating information regarding the sensed spatial relationship
- 30       and/or connection of the component to information processing means.

10. The component of claim 9 wherein the sensing means includes a Hall Effect sensor, a microswitch, an optical fibre connection, an optical sensor, a capacitance detector, a radio frequency identification, a proximity switch, an electronic strain gauge or a magnetic proximity detector.
- 5 11. The component of claim 9, wherein the sensing means includes a contact switch.
12. The component of any one of claims 9 to 11 wherein the sensing means is capable of sensing other information in addition to spatial relationship and/or connection.
13. The component of any one of claims 9 to 11 which includes a second sensor capable of sensing other information not being spatial relationship and/or  
10 connection.
14. The component of claim 12 or 13 wherein the other information is:
- (i) identity of the component or the assembly or part thereof; or
  - (ii) locked status of the component to the assembly.
15. The component of claim any one of claims 9 to 14, which has more than one of the  
15 sensing means.
16. The component of claim 15, wherein one of the sensing means is capable of sensing a different spatial relationship or connection from another of the sensing means.
17. The component of any one of claims 9 to 16, wherein the sensing means forms part of a fastener.
- 20 18. The component of claim 13, wherein the other information is the identity, presence or absence of another component.
19. An improved assembly system which includes:
- the component as claimed in any one of claims 9 to 18; and
  - information processing means for processing information communicated by the  
25 communication means.
20. The system of claim 19 which further includes:
- information display means for displaying information processed by the information processing means.

21. A method for assembling a component in an assembly substantially as herein described with reference to Figures 1 to 3 or 4 to 8 or 9 to 11 or 20 of the accompanying drawings.
22. A method for disassembling a component from an assembly substantially as herein  
5 described with reference to Figures 1 to 3 or 4 to 8 or 9 to 11 or 20 of the accompanying drawings.
23. A component for an assembly substantially as herein described with reference to Figures 1 to 3 or 4 to 8 or 9 to 11 or 12 to 15 or 16 to 19 of the accompanying drawings.
- 10 24. An improved assembly system substantially as herein described with reference to Figures 1 to 3 or 4 to 8 or 9 to 11 or 12 to 15 or 16 to 19 of the accompanying drawings.